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(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2017/0060322 A1**  
DING (43) **Pub. Date: Mar. 2, 2017**(54) **CAPACITIVE TOUCH SENSOR CIRCUIT,  
METHOD OF FORMING CIRCUIT, AND  
TOUCH SCREEN AND MOBILE DEVICE  
COMPRISING THE SAME**(52) **U.S. Cl.**  
CPC ..... *G06F 3/0416* (2013.01); *G06F 3/044*  
(2013.01); *G06F 2203/04103* (2013.01)(71) Applicant: **NOKIA TECHNOLOGIES OY,**  
Espoo (FI)(57) **ABSTRACT**(72) Inventor: **Long DING,** Beijing (CN)(73) Assignee: **Nokia Technologies Oy,** Espoo (FI)(21) Appl. No.: **15/120,787**(22) PCT Filed: **Mar. 3, 2014**(86) PCT No.: **PCT/CN2014/072792**

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A capacitive touch sensor circuit including a plurality of driving elements arranged as multiple rows in parallel with a horizontal axis of the touch screen, wherein the plurality of driving elements are connected into a plurality of driving lines; and a plurality of sensing elements arranged as multiple columns in parallel with a vertical axis of the touch screen, wherein the plurality of sensing elements are connected into a plurality of sensing lines, each of the plurality of sensing elements being paired with a respective one of the plurality of driving elements. The driving lines and the sensing lines are configured as at least one of: at least two driving elements of one of the plurality of driving lines being positioned at different rows; and at least two sensing elements of one of the plurality of sensing lines being positioned at different columns.

